ABSTRACT OF THE DISCLOSURE

A cathode for an electron tube, including a metal base and an electron-emitting material layer coated on the metal base, where the electron-emitting material layer contains a needle-shaped conductive material and the surface roughness corresponding to a distance between the highest point and the lowest point on the surface of the electron-emitting material layer is controlled to be under 10 microns. A needle-shaped conductive material is contained in an electron-emitting material layer to effectively form a conductive path, thereby minimizing the generation of Joule heat due to self-heating of the electron-emitting material layer. Also, grain and pore sizes of the electron-emitting material layer are uniformly controlled and the density and porosity of the electron-emitting material layer are also controlled, thereby improving the density and surface planarity of the cathode compared to the conventional cathode manufactured by a spraying method. Thus, during the operation of the cathode, shrinkage of the cathode can be prevented and uniformity in the distance between a cathode and a first grid can be maintained, thereby improving a lifetime characteristic and exhibiting a stable emission characteristic. Therefore, the electron tube cathode can remarkably improve a lifetime characteristic even for a high current density, which is needed for a larger and higher-definition cathode-ray tube.